



Spatial Auditory Displays for Speech Communications

The challenges of future space exploration will require high levels of performance from combined human and machine systems. New technologies developed using human factors research in spatial auditory displays will enable human operators to respond more quickly and effectively, with less fatigue.

Objective

To enhance the intelligibility of multiple communication channels normally heard with one-ear headsets, and to reduce operator fatigue.

Approach

Develop inexpensive audio technologies using spatial auditory display techniques and binaural headsets. Each communication source is processed to sound at a specific spatial location, enabling our everyday binaural processes to enhance intelligibility. The technology is designed to be easily retrofitted into existing systems, and can be customized for individual listeners.

Impact

Allows up to a 6 dB improvement in speech intelligibility compared to one-ear headsets. Listener fatigue is reduced, thereby enhancing safety. Operation of individual volume control is minimized for hands-free operation. A U.S. patent has been granted, allowing for technology transfer.



Relevance to Exploration Systems

Achieving enhanced intelligibility and reduced listener fatigue through this approach will result in improved over-all system performance and safety in operational systems.

H&RT Program Elements:

This research capability supports the following H&RT program elements:

ASTP: Advanced Studies, Concepts and Tools; Software, Intelligent Systems & Modeling

TMP: Advanced Space Operations

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